Epidemiology and Prevention: Survival After Myocardial Infarction

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Improvements in Hospital Care of Acute Myocardial Infarction Patients in Southern Germany: Do We See Improved Survival? Findings from the WHO MONICA Augsburg Coronary Event Registry 1988–1992

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According to clinical trial data improvements in hospital care of acute myocardial infarction patients such as thrombolytic therapy (TNT), angiography (PTCA), bypass surgery (CABG), antiplatelet drugs (ANTPL), beta-blockers (BB), and ACE inhibitors (ACE) should have a positive impact on the survival of patients (i.e., mortality) of AMI patients. We analyzed data of the population based WHO MONICA Augsburg coronary disease registry which covers a population of 2 million people in Southern Germany. From 1988 to 1992, 7,000 cases of myocardial infarction (MONICA diagnostic criteria) were registered among 25 years old men and women. Of the 7,000 events 4,904 reached the hospital alive and of these 861 (74%) men and 72% of women. First and second recurrent events survived 24 hours after hospitalization. From 1988 to 1992, the age standardized prevalence (\% of AMI) was significantly increased over time (TNT 25%, PTCA 17%, CABG 3%, ANTPPL 6%, BB 30%, and ACE 32%). The improved therapeutic strategies were similar in men and women and in patients with first and recurrent events. 28 day case fatality (CF) for hospitalized 24 hour survivors was chosen as an appropriate indicator to reflect improvements in hospital care of AMI patients. However, neither this measure nor any other case fatality measure such as 28 day CF or all hospitalized AMI cases showed any downward trend in men or women over the eight year period. Obviously, statistically significant but clinically small effects of new therapeutic procedures were demonstrated by clinical trial data in an ideal setting may not be measurable on the population level even in routine hospital care for AMI patients.

Long-term Survival in 11,000 Consecutive Patients with AMI

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The MIT Registry, a contemporary registry of 11,163 Seattle patients with AMI, was used to evaluate factors that influence long-term survival. Mean follow-up was 4 years with a maximum of 12 years. For the entire cohort survival at 1, 3, and 4 years was 81%, 72%, and 67%, respectively. In the Cox multivariate regression analysis, older age predicted lower survival (OR = 0.66 per decade 95% CI = 0.63–0.7) whereas female gender (OR = 0.95 CI = 0.93–0.98) and non-white race (OR = 0.95 CI = 0.93–0.98) were associated with longer survival. During the index admission, patients who had a history of myocardial infarction (OR = 0.69 CI = 0.62–0.76), heart failure (OR = 0.7 CI = 0.59–0.83), or history of surgery (OR = 0.7 CI = 0.59–0.83), had lower survival. Also during the index hospitalization, patients with new heart failure (OR = 0.56 CI = 0.43–0.69), shock (OR = 0.35 CI = 0.22–0.52), and ischemic ventricular tachycardia (OR = 0.43 CI = 0.32–0.59) had lower survival. Although patients with coronary angiography had higher survival (OR = 2.2 CI = 1.6–2.7), neither bypass surgery, primary or elective PCI were independently associated with survival. Hospital factors such as the availability of on-site angiography, along with admission to an HMO hospital were also not associated with long-term survival.

Changing Hospital Mortality and Use of Invasive Procedures in Acute Myocardial Infarction

Zhong-Hua Liao, Alan C. Wilcox, John B. Kostis for MIDAS, shape of the tendency toward lower hospital mortality as time progresses, with an increase in the use of invasive procedures. In order to evaluate the community wide impact of recent changes in the management of acute mycoidial infarction (AMI), we examined the use of procedures and hospital mortality in all patients admitted in the state of New York in 1992. In 1990 (N = 21,639) and 1989 (N = 21,639). The sex and age distribution, admission percentages to different types of hospitals were similar in 1989 and 1990. Patients admitted in 1989 had more diabetes (24.8% vs. 22.5%, p < 0.01), fewer complications related to left ventricular dysfunction (60.9% vs. 46.7%, p < 0.001) and myocardial infarction (36.0% vs. 31.2%, p < 0.001) and shorter length of stay (N = 150, vs. 123, p < 0.001). In 1990, catheterization was performed in 28% of men (14,818/51,015) and 18% of women (5,662/30,315) among a total of 38,978 patients. The use of hospitalization, the odds ratio and undergoing the procedure for women vs. men was 1.5 (95% CI = 1.2–1.8) in 1989 and 1.2 (95% CI = 1.1–1.4) in 1990. Hospital mortality decreased significantly (p = 0.001) from 20.0% in 1989 to 16.3% in 1990 (p = 0.001) from 16.3% in men and 24.8% in women. In summary, this study indicates a community wide lowering of hospital mortality as well as an increase in the use of invasive procedures. The data suggest that invasive procedures are used less in men and women.